



Hunter and Central Coast Sustainable Aquaculture Strategy

Readers' Note

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Aquaculture Industry Development Plan

Hunter and Central Coast Sustainable
Aquaculture Strategy
Land Based Aquaculture

A NSW Government Initiative

Hunter and Central Coast Sustainable Aquaculture Strategy

A NSW Government initiative of Department of Primary Industries, Department of State and Regional Development, Department of Environment and Conservation, Department of Lands, Department of Infrastructure, Planning and Natural Resources and NSW Premiers Department to encourage sustainable aquaculture in New South Wales.

Aquaculture Industry Development Plan

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1. Objectives of the AIDP

The Aquaculture Industry Development Plan (AIDP) has been developed under the provisions of the *Fisheries Management Act 1994*. The Minister for Primary Industries has determined the Aquaculture Industry Development Plan (AIDP) in accordance with section 143 of the *Fisheries Management Act 1994*. The AIDP's purpose is to promote economically and environmentally sustainable land-based aquaculture by providing guidance for responsible aquaculture practices.

The Objectives of the Aquaculture Industry Development Plan

1. To provide the basis for the attraction of investment and employment in sustainable aquaculture to the region and the recognition of the region for its sustainable aquaculture industry.
2. To facilitate sustainable aquaculture in the region through:
 - a) reinforcing within the aquaculture industry the need for a commitment to environmental sustainable practices and a duty of care for the environment in which the industry is located;
 - b) ensuring environmental factors are considered in site selection for the optimum siting of new aquaculture enterprises;
 - c) ensuring environmental factors are considered in the planning, design and operation of all aquaculture enterprises.
3. To provide the technical basis for the efficient and effective regulation of the industry with up-front certainty to applicants, the community and decisions makers as to the appropriate environmental performance of aquaculture.

The AIDP provides the best practice environmental management component of the Sustainable Aquaculture Strategy with a clear signal to the existing aquaculture industry as well as new investors as to the environmental performance objectives expected. The AIDP includes the following:

- **Business Planning,**
- **Species Selection,**
- **Site Selection,**
- **Planning and Design,**
- **Operating the Farm.**

It is recognised that the industry is in a dynamic phase, with research and development leading to a better understanding of what constitutes best practice from a commercial production as well as an environmental performance standpoint. However, the provisions put forward in the AIDP represent what is considered current best practice and provide a minimum performance benchmark. Industry is encouraged to make improvements on the environmental performance set out in the AIDP. When there are significant advances in best practice, the AIDP will be reviewed to reflect those advances. This Strategy is promoting continuous improvement in performance.

2. Land Based AIDP

The AIDP applies only to land based aquaculture that includes ponds, dams, raceways and tank culture. While it is recognised that there is significant potential for aquaculture in public waterways (including estuaries and the ocean), these forms of aquaculture will be dealt with in another strategy focusing specifically on the environmental and technical issues relating to those sectors.

The AIDP focuses on “intensive” aquaculture which is defined as aquaculture involving supplementary feed in purpose-built pond, raceway or tank based systems using saline or fresh water for the commercial production of fish or marine vegetation. Table 1 provides examples of extensive and intensive aquaculture in land based and in natural water bodies.

Tanks systems include hatcheries but do not include pet shop activities, aquariums for exhibition only or personal scientific collections. The pond systems do not include dams or other systems where there is no supplementary feeding of stock (eg. stocking of farm dams where the fish or yabbies are reliant on the natural ecosystem in the dam for food).

Table 1. Aquaculture covered by the Land Based AIDP

The shaded part of this table shows the types of aquaculture covered by this AIDP.

Location	Intensive some form of supplementary feeding	Extensive no supplementary feeding
On land above the top of the bank or the mean high water mark	hatcheries culture of <ul style="list-style-type: none"> • fin fish • yabbies & other crustacea • abalone, scallops, oysters, mussels & other mollusca • aquarium species bred for sale to pet shops • fishouts 	culture of <ul style="list-style-type: none"> • fin fish • yabbies • fishouts
In natural waterbodies below the top of the bank or the mean high water mark	Culture of <ul style="list-style-type: none"> • fin fish • scallops, abalone & other mollusca 	culture of <ul style="list-style-type: none"> • mussels • oysters • scallops

Land based aquaculture facilities for ponds, tanks, hatcheries, raceways, and fishouts may include facilities for

- holding, breeding, harvesting and pre-market conditioning (purging) of stock;
- associated facilities for the preparation or storage of feed;
- processing, manufacturing, packaging or distribution of products;
- administration, laboratory, storage and maintenance facilities;
- waste management;
- water extraction, storage, reticulation and recirculation systems;
- transport facilities including access;
- any related tourist or fishout activities.

3. The Hunter and Central Coast AIDP for Land Based Aquaculture

3.1 Extent of the application of the Hunter and Central Coast AIDP

The Hunter and Central Coast Aquaculture Industry Development Plan only applies to land based aquaculture on the Hunter and Central Coast of NSW including the Hunter River catchment and extends from south of the Manning River catchment to the Hawkesbury River catchment. It includes the following local government areas:

Cessnock, Dungog, Gloucester, Gosford, Great Lakes, Lake Macquarie, Maitland, Muswellbrook, Newcastle, Port Stephens, Singleton, Upper Hunter (incorporates Merriwa, Murrurundi & Scone) and Wyong.

The AIDP covers a range of environmental, technical and commercial issues to be considered in establishing and operating an aquaculture enterprise on the NSW Hunter and Central Coast Region. As guidance, an Estuarine Aquaculture Land Suitability Map and a Non Estuarine Aquaculture Land Suitability Map have been developed for Port Stephens and surroundings to assist in identifying land that is potentially suitable for pond and tank aquaculture. Land identified in these maps meet some of the broad landscape requirements for pond and tank aquaculture. These maps provide a first step in potential site selection with further site specific assessment required to confirm the suitability of a specific site for aquaculture.

The Hunter and Central Coast of NSW is a region with significant potential for the development of land based aquaculture with an emerging industry as demonstrated in Table 2. It is a region with broad river valleys, healthy river catchments, developed infrastructure and a readily available labour force.

Table 2. Aquaculture in the Hunter and Central Coast Region 2005

Local Government Area	Fisheries Permit Class			Species		
	D	F	H	Marine Fish	Fresh water Fish	Yabbies
Cessnock	2	1	0	1	2	0
Dungog	2	0	0	0	1	1
Gloucester	7	1	2	1	7	0
Gosford	2	1	3	1	1	1
Great Lakes	5	0	1	4	5	4
Lake Macquarie	1	0	0	1	0	0
Maitland	1	0	1	1	1	0
Muswellbrook	1	0	1	0	1	0
Newcastle	0	0	0	0	0	0
Port Stephens	3	0	1	2	3	2
Singleton	1	0	0	0	1	0
Upper Hunter						
Former Merriwa	0	0	0	0	0	0
Former Murrurundi	1	1	0	1	1	0
Former Scone	1	1	0	0	1	1
Wyong	0	0	0	0	0	0
TOTAL	29	5	8	12	26	10

Permit Class D = Intensive land based aquaculture
Permit Class F = Fishout permit;
Permit Class H = Hatchery permit

There is now good information of surface and subsurface water resources and a depth of knowledge on the location and management of acid sulfate soils in coastal areas. In addition to the favourable climate, the Hunter and Central Coast Region offers distinct advantages in relation to the accessibility to domestic markets in Sydney and Newcastle and to overseas markets for both live, chilled and frozen shellfish and fish.

3.2 Review of the Hunter and Central Coast AIDP

Under the Fisheries Management Act performance indicators must be established within an AIDP to determine if the objectives set out in the plan are being achieved. The plan must also specify at what point a review of the development plan is required if these performance indicators are not being met. The indicators in Table 3 relate to performance and cumulative issues and will provide the trigger that will initiate a review of the plan by the Minister.

Table 3. Triggers for review of the Hunter and Central Coast Land Based AIDP
Note: indicators need to be reviewed in as the AIDP develops

Indicator	Measure	Trigger for Review of AIDP
1. Number of new or expanded aquaculture permits per annum	Reflect effectiveness of objective (1) to encourage aquaculture industry	<5 per annum See Table 2.
2. Percentage of aquaculture farms providing Department of Primary Industries with "acceptable" compliance reports on time per annum	Reflect effectiveness of the industries acceptance of responsibility for environmental performance in accordance with objective (2a & c)	<90% per annum
3. <i>Surface area of estuary pond farms per estuary compared with area suitable for estuarine pond farms in estuary</i>	<i>Potential cumulative water quality issues in accordance with objective (2b)</i>	<i>See Table 4 below for trigger for specific estuaries</i>
4. Percentage of designated development proposals	Reflect the effectiveness of objective (3) to encourage lower risk projects	>30% designated development
5. Number of years since review (if not triggered for other reasons)	Potential to become out-of-date with advice no longer reflecting the most sustainable approach	> 5 years

While the focus of this plan is on facilitating high quality performance on individual aquaculture farms, it is recognised that cumulative issues could become a concern when a series of aquaculture enterprises are established within a catchment or subcatchment. The principle issues of concern relate to water quality and flows.

Except for species approved for flow through systems (eg. Salmonoids) the Hunter and Central Coast AIDP does not permit discharge from freshwater aquaculture facilities. The areas suitable for flow through production in the Hunter and Central Coast Region are very limited. Therefore, the potential for cumulative water quality impacts from this sector of the industry is low.

However as saline pond, raceway and tank systems are permitted to discharge treated water back into the estuary, the review of the strategy focuses on the potential for cumulative impacts in estuary catchments and sub-catchments. Water quality triggers for review of the AIDP in relation to estuarine aquaculture systems have been based on the total farm water surface area (as a surrogate for the quantity and quality of water discharged) compared to the total area suitable for ponds identified in key estuaries considered in the AIDP. Exceedence of these areas (set out in the Table 4 below) will require a review of the AIDP for that catchment.

Table 4. Cumulative indicators for estuary pond farms

Hunter and Central Coast Rivers or Lake Catchment	Gross Area identified as suitable for estuary pond farms in <i>Potential Suitable Land Map</i> (ha)	Trigger for review AIDP Ponds with Water Surface Area of greater than the threshold below (ha)
Wallis Lake	NIL	N/A
Port Stephens	5,496	10
Hunter	10,431	100
Lake Macquarie Catchment	NIL	N/A
Lake Tuggerah Catchment	NIL	N/A
Brisbane Waters Catchment	NIL	N/A
Hawkesbury Catchment	NIL	N/A